

## **REMARKS**

### Amendments to Specification:

The specification has been amended in accordance with each of the examiner's suggested amendments. It is noted that the suggested amendment at page 18, line 39 was made in the amendment submitted December 17, 2004. Upon indication of allowance of the instant application, Applicants will perform a comprehensive review of the specification to ensure that all such errors are corrected prior to issuance of a patent.

### Claim Amendment to Address Objection

Applicants have amended claims 18 so that it reads correctly. In the corrected claim, the proper verb should be "is".

### Additional Claim Amendments

Claim 38 has been amended to provide antecedent basis for "the same catalyst architecture". As amended, each of the zones has a catalyst architecture, and the first and second zones have the same catalyst architecture. As defined in the specification, catalyst architecture refers to the physical design of the coating in a zone considering parameters such as the number of layers of coating compositions, the thickness of the layers, and the order of layers where there is more than one layer.

Claims 1 and 10 have been amended to indicate that the components are fixed in the first zone "exhibiting a minimum of component migration from the first zone." Support for this amendment can be found at least at page 12, lines 3-11.

### Rejections Under 35 U.S.C. § 103

#### Claims 1, 2, 6, 9, 10, 14, 17-20, 24, 38-45 and 51

Claims 1, 2, 6, 9, 10, 14, 17-20, 24, 38-45 and 51 are rejected as allegedly being obvious over WO 92/09848 in view of Domesle et al. for the reasons set forth on page 4 of the Office Action.

Independent claims 1 and 10 include the limitations that the wall flow honeycomb substrate has a first inlet layer defining a first zone that extends for only part of the length from the inlet toward the outlet end and **fixed** in the first zone and exhibiting a minimum of component migration from the first zone. As noted in the specification at page 11, lines 35-40, components, particularly soluble components such as precious metals are fixed in their respective zones. By fixing components such as precious metals within their respective zones, a monolithic honeycomb can be multifunctional with minimum, and preferably, no migration of the components from zone to zone, particularly during manufacture of the honeycomb. Another advancement of the articles of the present invention, as explained in applicants' specification at pages 12, lines 5-11, is that there is a minimum of component migration even where a composition from one zone overlaps with the composition in another zone. The fixing of components in their respective zones can be achieved by chemically or thermally fixing the components within their respective zones.

Applicants respectfully point out that the Background section of the specification provides a discussion of WO 92/09848, and note that WO 92/09848 discloses a monolithic honeycomb containing different catalyst composition in zones along the length of the honeycomb. However, WO 92/09848 is silent on fixing components within zones such that the zones exhibit a minimum of component migration from the first zone. Applicants acknowledge that WO 92/09848 contains the word "fixed" in the specification, however, WO 92/09848 does not teach or suggest fixing components within a zone to minimize component migration or diffusion between zones. For example, at page 16, lines 4-5 of WO 92/09848, it is stated that "the high surface area washcoat may be applied first to the monolith or metal foil and fixed in place." But this statement is in the context of fixing the support to the substrate, and then the catalyst is sprayed or dipped onto the support. WO 92/09848 also discusses fixing the catalytic metals to the oxide powder prior to applying the oxide powder as a washcoat to the substrate. (See WO 92/09848 at page 17, lines 30-32.) Thereafter, the support bearing the "fixed" catalytic metals is milled to form a sol and then applied to the substrate.

There is no discussion of fixing any of the components within a zone on the substrate. Further, there is no teaching or suggestion of a wall flow type catalyst.

Applicants note that in applicants' specification, methods for fixing components within their respective zones are discussed. For example, at page 13, lines 3-28, the specification provides methods to fix components within a layer or zone by applying a heated gas stream upon completion of a coating step and prior to the next coating step. There is no teaching or suggestion of fixing components within layers or zones in WO 92/09848, as each of the examples fails to teach or suggest a method to fix components within a zone after each layer is applied.

At paragraph 13 of the Office Action, the Examiner acknowledges that Domesle et al. does not teach fixing components within a specific zone. Accordingly, since neither Domesle et al. nor WO 92/09848 teaches fixing components within a zone such that there is a minimum of migration between zones, the rejection should be withdrawn.

Furthermore, the rejection is improper in that there is no motivation to combine the teachings of WO 92/09848 with Domesle et al. As noted in previous amendments, WO 92/09848 pertains to a catalyst used in catalytic combustion, while Domesle et al. discloses a catalyst for a different application. There would be no expectation of success in making the combination as suggested by the examiner. Accordingly, withdrawal of the rejection is respectfully requested.

#### Rejection of claims 47-50

Claims 47-50 were rejected as allegedly being obvious over WO 92/09848 in view of Domesle et al. further in view of Hu et al. for the reasons set forth at paragraph 5, page 8 of the office action. For at least the reasons provided above with respect to claims 1, 2, 6, 9, 10, 14, 17-20, 24, 38-46 and 51, claims 47, which depend directly or indirectly from claim 1, are patentable. Hu et al. fails to remedy the deficiencies in WO 92/09848 and Domesle et al. Furthermore, applicants reiterate the arguments made at pages 15-16 of the amendment submitted on December 17, 2004. Accordingly, withdrawal of the rejection of these claims is respectfully requested.

Rejection of claims 1, 2, 6, 9, 10, 14, 17-20, 24, 27, 28, 32, 35, 36, 38, 40, 42-46 and 51

The above claims were rejected as allegedly being obvious over Takahata et al in view of Domesle et al, as stated at page 6, paragraph 9 of the office action. In making the rejection, the Examiner admits that Takahata et al. does not disclose a wall flow substrate or that the coating may lack a noble metal.

Takahata et al. fails to teach or suggest fixing components within a zone such that there is a minimum of component migration from a particular zone, as required by claims 1 and 10. Takahata et al. does teach fixing a component to a particulate alumina substrate, however, after "fixing" the component to the particulate substrate, the particulate substrate bearing the component is milled and further processed prior to applying the material as a washcoat to a monolith carrier. (see col. 6, lines 53-58.) There is no disclosure or suggestion of fixing components within individual layers or zones after a washcoat has been applied.

Furthermore, one skilled in the art would not combine the axially zoned catalyst of Takahata useful to treat exhaust gases from a gasoline powered engine with a wall flow filter of Domesle for treating diesel exhaust having a different catalyst on the inlet side and outlet side of the channels because the catalysts are designed for different applications, and there would not be an expectation of success in combining features of catalysts used in different environments.

Claims 37, 39, and 41

The above claims were rejected as allegedly being obvious over Takahata et al. in view of Domesle et al. and further in view of WO 92/09848 for the reasons set forth at paragraph 10 on pages 7-8 of the office action. The remarks made immediately above are reiterated with respect to the rejection over Takahata in view of Domesle. One skilled in the art would not be motivated to combine teachings from WO 92/092848 from the field of catalytic combustion with Takahata from the field of gasoline engines with Domesle from the field of diesel engines to obtain the present invention because there would be no expectation of success in making the combination. It appears that the examiner has relied

on hindsight to pick the various elements of the claims from disparate references to arrive at the claimed invention. Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 47-50

Claims 47-50 were rejected as allegedly being obvious over Takahata et al. in view of Domesle et al. further in view of Hu et al. for the reasons set forth at paragraph 11 on page 8 of the Office Action. This rejection is respectfully traversed for at least the reasons provided above, namely, the failure of any of the cited references to teach a catalyst in which components are fixed in a zone and exhibiting a minimum of component migration from its respective zone. Takahata et al. and WO 92/09848, both from the field of gasoline engines disclose axial zoning, while Domesle, which is from the field of diesel engines, does not disclose axial zoning. Furthermore, Hu et al. does not disclose the use of wall flow filters. There would be no expectation of success in combining the disparate features of the references which are from different types of applications to arrive at applicants' invention.

The undersigned has been authorized by Richard A. Negin, Reg. No. 28,649, an attorney of record in the subject application, to prepare and file this Amendment on behalf of the Assignee. Correspondence should be directed to Chief Patent Counsel, BASF Catalysts LLC, 101 Wood Avenue, P.O. Box 770, Iselin, NJ, 08830-0770.

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Reconsideration of the above-referenced patent application in view of the foregoing amendment is respectfully requested. It is not believed that any fees are due. However, if any fees are due, however, the USPTO is authorized to charge Deposit Account No. 50-3329.

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Respectfully submitted,

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